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COVERS: Front -- Bluffton area in northeast Iowa. Photo by Ron Johnson. Back -- Blazingstar. Photo by Ken Formanek.

Printed on recycled paper.



Notice anything different about this issue of your Iowa Conservationist? We hope not!

Although this issue represents a national breakthrough in publishing technology, you are not supposed to notice that:

To our knowledge this is the first periodical in the U.S. printed on coated (glossy) recycled paper which contains a significant volume of true wastepaper.

Until the paper that you are currently looking at was developed, the only recycled paper in use in the publishing world was comparatively porous and rough-textured. Those qualities resulted in inks being soaked up and blended together so that vivid colors would not appear as sharp and crisp as publishers — and particularly, advertisers — demanded. Spurred on by the trend in the nation to be more conscientious

about waste management, Future Fibers, Inc., of San Raphael, California, this summer produced a recycled stock that would print as well as any of the non-recycled papers.

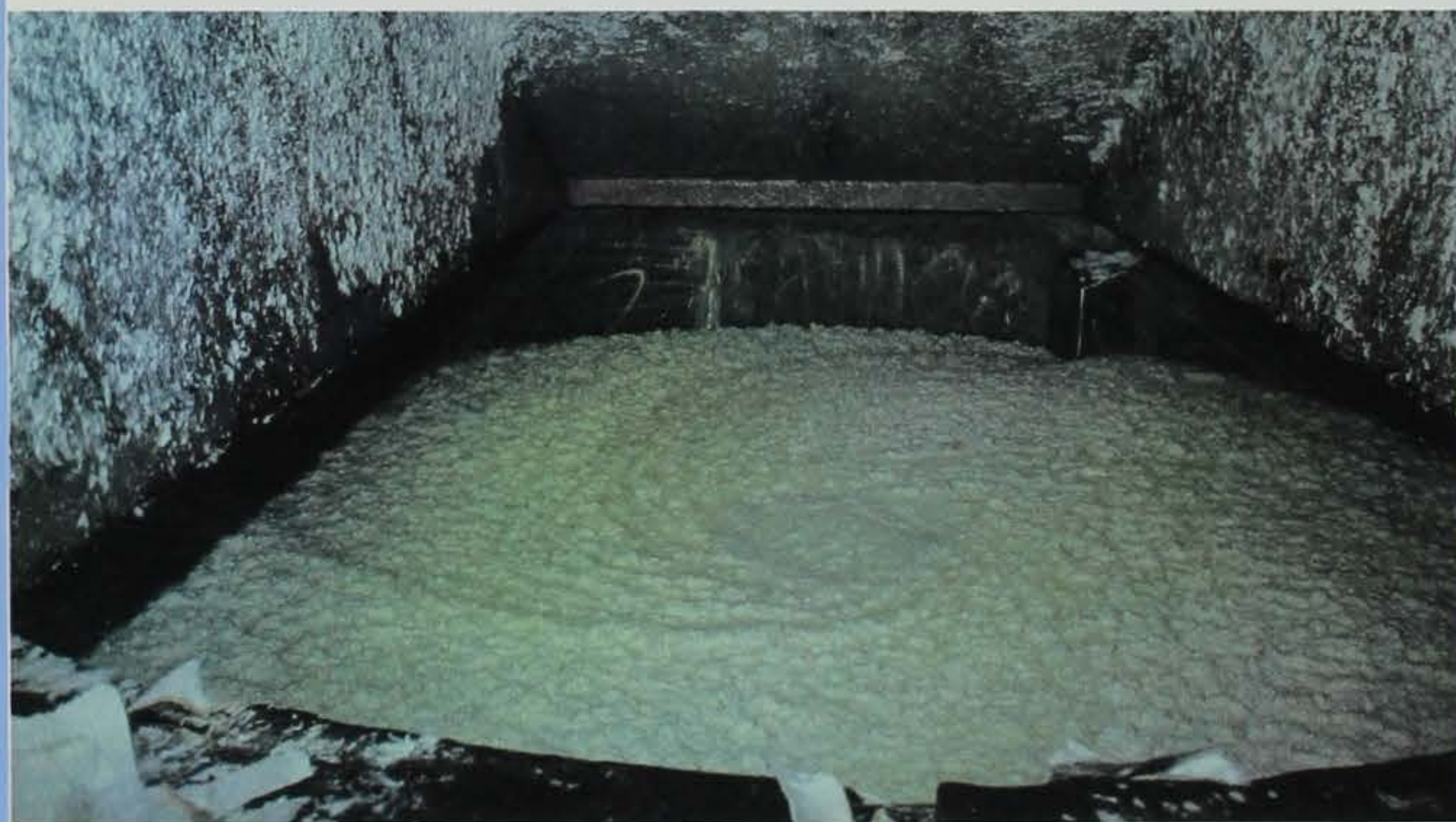
Knowing of the Iowa DNR's commitment to use recycled paper wherever possible, Wright Printing Company of Des Moines, printer of the *Iowa Conservationist*, made a pitch to the DNR to try out this new paper. According to Future Fibers, Inc., there is currently no equivalent to the quality of this paper anywhere in the world. During the trial run when part of the August issue was run with this paper, a roll of it was fed through Wright's highly sophisticated web

A Vanguard for Change

Story by Ross Harrison
Photos by Ron Johnson

The Iowa Conservationist is leading the way in the use of recycled paper for high-quality, full-color publications. Recent developments in recycled stock will enable printers to produce publications the quality of this issue.





Wastepaper collected from consumers will be shredded and then ground up to add with other recovered paper material and virgin pulp to make the recycled paper this magazine is printed on.

Both virgin fiber and the recycled paper are cooked in large vats that mix the materials before being sent to the paper-making machines. The pulped material resembles oatmeal in color and consistency.

press without alerting the press operators. With no adjustments, it printed perfectly.

Forty percent of this paper comes from paper wastes that would never have gone to a landfill, such as un-inked trimmings from envelope makers or printing plants. While it is good that such trimmings have been effectively used in paper production for many years, perhaps a more important component of this recycled paper is the "post-consumer waste" paper that would have gone to a landfill. The primary source of

If we fully understood how all of the costs of wastepaper truly affect our pocketbooks, we might discover that our "extra" costs today are less than those long-term and subtle environmental costs we may face if we keep doing things the same old way.

post-consumer waste used in the paper for the *Conservationist* is old Michigan school books. (The paper plant is in Kalamazoo, Michigan.) Post-consumer wastepaper makes up about half of all of our garbage. There is 10 percent of this type of waste in the Future Fibers, Inc., paper.

You may have guessed that this paper is expensive. In essence, the way it is manufactured requires it to be "made" almost twice, compared to regular paper. It adds more than 13 percent to the cost of printing the *Iowa Conservationist*. But, we expect that the demand for

this type of paper, and eventually governmental regulations requiring it, will result in a diversity of companies producing it and pricing that is competitive with the coated papers made of the traditional virgin fibers.

A critically important part of the DNR's mission is to demonstrate resource conservation opportunities. As with many forms of new technology, those of us who help in the pioneering may pay a little extra for establishing more environmentally responsible traditions. If we fully understood how all of the costs of wastepaper truly affect our pocketbooks, we might discover that our "extra" costs today are less than those long-term and subtle environmental costs we may face if we keep doing things the same old way.

You also have a role in resource conservation. Show this issue of the *Conservationist* to a friend who deals in printing . . . help us spread the word on this revolutionary paper. As a consumer, ask for recycled "anything" to help generate the demand for more responsible products. And keep learning how to live more responsibly, in tune with your environment.



As the paper comes off the paper machine, the coated surface is polished as the roll is wound. The paper will then be rewound and polished further to give the smooth glossy surface.

The state has adopted this logo (left) to distinguish recycled paper. Look for it on all state publications.



The State of Iowa Sets an Example

Story by Bob Meddaugh
Photo by Ron Johnson

Last March, Governor Terry E. Branstad signed Executive Order #37 that moved the state of Iowa into the forefront of the recycling issue. That order mandated that state agencies begin using recycled paper as a means of reducing future solid waste disposal problems.

Where it is at all possible, state agencies have had to begin using recycled paper for at least 25 percent of all printing and writing

paper needs. Through the next 11 years, that figure increases to 90 percent. Although the phasing-in of new supplies of paper has not been without its difficulties, it is becoming readily accepted now that recycled paper is here to stay and that supplies can be found which meet just about all of the qualities of the "virgin" fiber paper.

"Since the Department of Natural Resources was given major responsibilities in implementing this program, we wanted to demonstrate to other state agencies that recycled paper can work," said Larry Wilson, director of the DNR. "Printing the *Conservationist* on this newly developed recycled paper is a very visible sign to them and to the private sector, as well, that the products are available and that they are very satisfactory. If recycled paper costs are somewhat higher to begin with, they will soon moderate as the demand generates more competition and greater supplies."

The effort by Iowa's state agen-

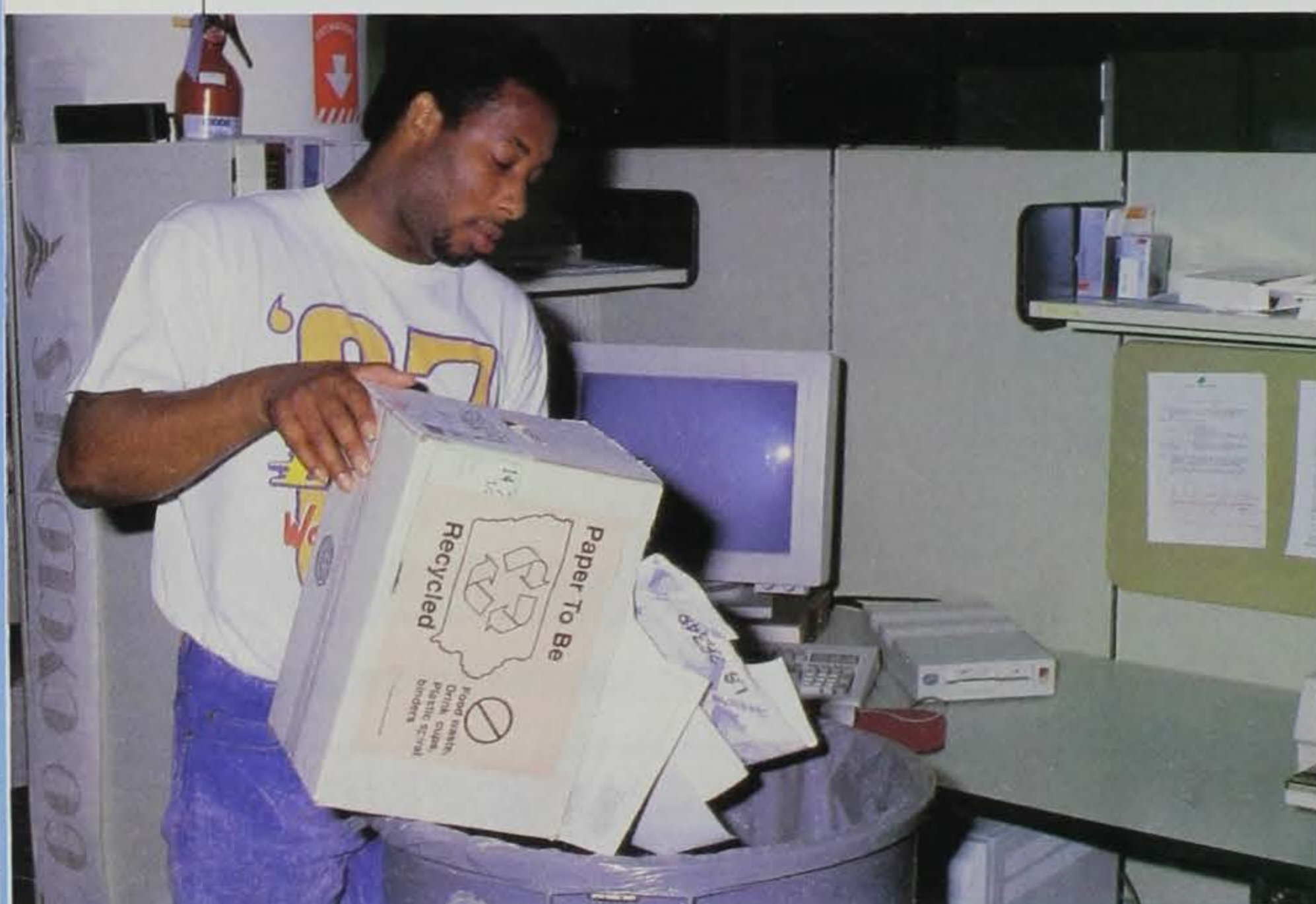
cies to use recycled products is part of an overall strategy to reduce our reliance on landfills as the main way to get rid of our trash. Paper is one of the largest segments in our solid waste stream. Nearly half of what we throw away is paper. Each year, every Iowan discards more than 670 pounds of paper; enough to fill garbage trucks bumper-to-bumper around the entire perimeter of the state.

Each state employee in the Des Moines capitol complex is also participating in an office paper recycling program. At their work stations, they separate the recyclable office paper from the food waste, plastic binders, coffee cups and other non-recyclable trash. The paper is collected daily by a commercial paper recycler who sorts and sells it to paper mills to go into the production of more paper. Within the first week of operation, the state cut in half the amount of waste it was sending to the landfill.

"We are very pleased with what the recycling program is saving us," explained Merlin Morris of the Property Management Division, Department of General Services. "Not only are we getting paid for the paper we recycle, but we are realizing a substantial savings in our solid waste disposal costs."

Bob Meddaugh is the recycling coordinator for the department and is located in Des Moines.

Through a cooperative effort to recycle office paper, the state capitol complex, in Des Moines, has cut waste going to the landfill in half.





JOHN PITLO

S A U G E Y E

Fact or Fiction

What is a saugeye? A saugeye is a cross between a sauger and a walleye. Sauger are usually found in the Missouri and Mississippi rivers in Iowa. They are basically a smaller version of a walleye and are better adapted for a river environment. Walleye are commonly found throughout the state and are very popular with Iowa's anglers.

The hybrid cross, saugeye, can occur naturally and displays characteristics of both parents. A saugeye is difficult to distinguish from its parents, but they have

more color and are slightly darker than walleye -- they have scales on the cheek patch near their eye, and have horizontal markings on their sides similar to sauger. They have been reported to reach weights exceeding 10 pounds, and in fact, many large sauger that are caught by anglers are actually saugeye.

Research indicates that saugeye can be a positive benefit to Iowa's fisheries resource. Numerous other Midwest states are also interested in this fish, and some states, most notably Ohio, have done extensive research on the saugeye. Well, what exactly makes this fish so

attractive to Iowa? Research indicates higher survival and growth from the fish hatchery, and this fast growth continues throughout its life.

Studies also indicate that they tolerate turbid water conditions better than walleye and instead of replacing walleye, they can complement them by occupying different areas — possibly the muddy, upper reaches of lakes.

Before we go much further many of you might be asking, do we compromise our future walleye fishery and their gene pool by stocking this hybrid? The answer

by Mike McGhee



ILLUSTRATIONS BY MAYNARD REECE

The saugeye (see previous page) takes on characteristics of its parents, the sauger (top) and walleye (bottom), and it is often difficult to distinguish from them.

is no. We are stocking saugeye in lakes that are not "broodfish lakes" used for hatchery production. Generally, if we did not stock walleye in our lakes in Iowa, walleye fishing would be dramatically reduced. In our northern lakes, natural reproduction can account for up to 10 percent of any given year's walleye population and usually it is considerably less. In southern Iowa lakes natural reproduction makes up less than five percent of a population in a good year and normally less than one percent. Limiting factors are primarily related to lack of quality spawning habitat, weather and water conditions.

In Iowa, the discussion to develop a saugeye stocking program began in 1985. We were unsuccessful in our 1986 attempts to rear saugeye but the last three years saugeye were raised and

stocked. Total saugeye produced in 1987 was 1,050,000 fry (small, several-day-old fish) and 81,150 small fingerlings, and in 1988, 1.25 million fry and 74,000 small fingerlings were produced.

Saugeye production results from 1989 are not yet available. Saylorville Reservoir has received 800,000 fry each year, with four other lakes — Icaria, Twelve Mile, Little River and Rock Creek — receiving 1-1/2- to 2-1/4-inch fingerlings at rates of up to 40 fish per acre.

The procedure to raise these fish begins each year in April when both sauger and walleye are nearing the time when they spawn. At first the fisheries research team at Bellevue, Lock and Dam 11 and the Mt. Ayr fisheries management team utilized trammel and gill nets and electrofishing boats to gather male sauger from the Mississippi

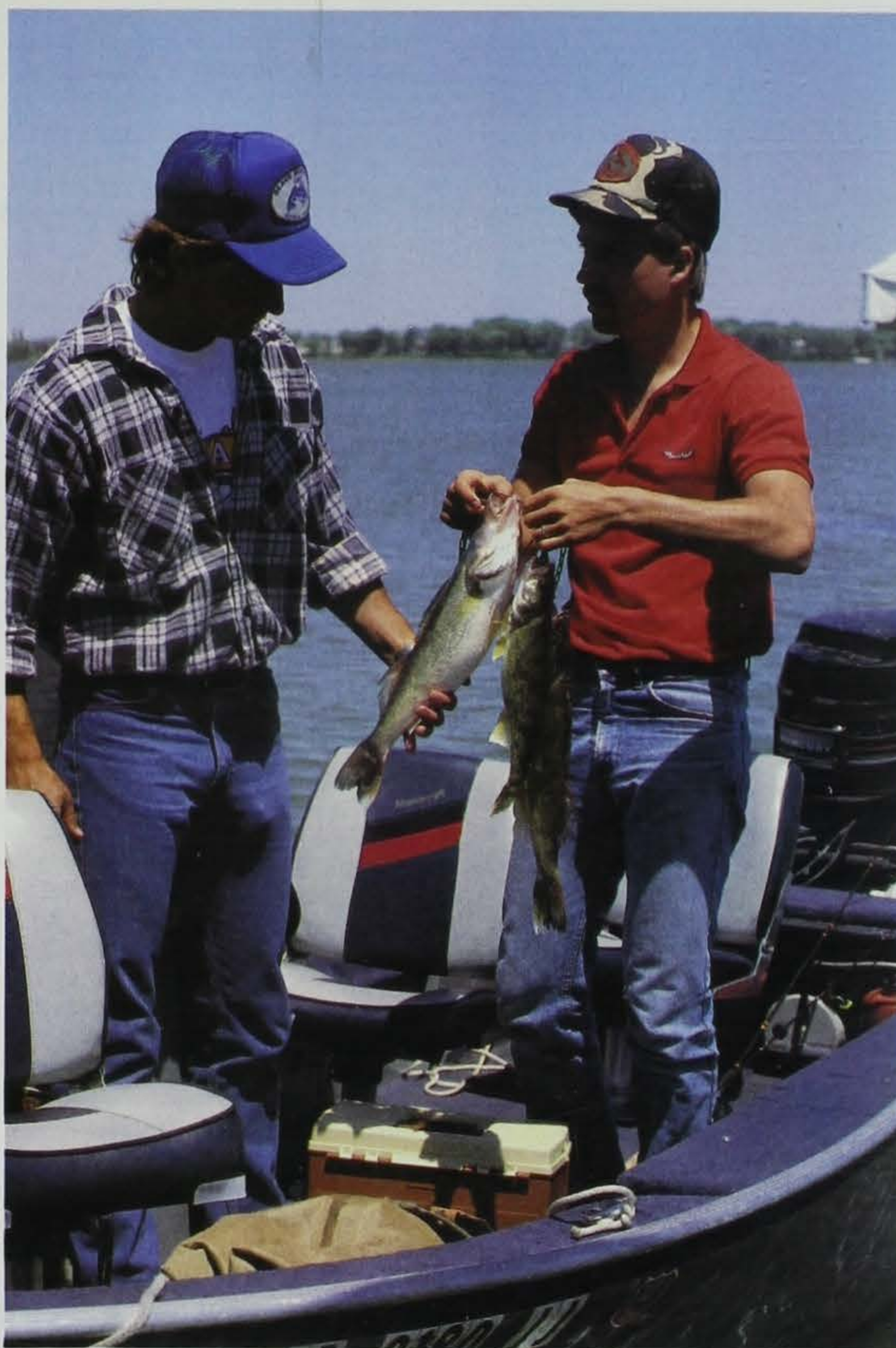
River. Semen is stripped (milked) from the fish and then the fish are returned to the river. However, most of the sauger are now gathered by checking anglers near the Bellevue and Guttenberg boat ramps. The anglers' catch is borrowed for a few moments while semen (milt) is taken from the male sauger.

Initially several dozen male sauger have provided enough semen for Iowa's program, but as the program expands up to 500 male sauger will be needed each year.

The semen is delivered to Rathbun where it can be refrigerated for up to several weeks and still fertilize eggs. A "ripe" walleye female is selected, eggs are stripped from her and then fertilized with the sauger semen. Saugeye are now in the process of being made. Depending on water temperatures, a week to 10 days later small saugeye fry begin to hatch. After several days in the hatchery, they are either stocked in lakes directly as fry or sent to the Mt. Ayr Fish Hatchery where they are placed in nursery ponds and remain for about six weeks.

The fish are then 1-1/2 to 2-1/4 inches long and are ready to be stocked in lakes around the state. This is usually in the first week of June. Growth continues to be quite rapid, and by fall these fish are six to nine inches in length. Survivorship of saugeye fry from the hatching jars and for the small fingerlings from the rearing ponds has been 5 to 10 percent greater than for walleye.

After several years of stocking in Iowa, what is happening? Saugeyes are surviving. Also, growth to date has been similar to the walleye, however, research from other states indicate that during the third year, saugeye grow at a faster rate than walleye. In some of the lakes where both walleye and saugeye are being stocked, greater numbers of saugeye have been noted. At this time we do not know if more are surviving or if they are easier to sample than walleye. Fish stockings will continue for several more years, with stocking success




LOWELL WASHBURN

monitored. The ultimate fate of the program will be the saugeye's contribution to the angler's creel. During the 1989 fishing season, saugeye will be taken by anglers with fish averaging 14 to 19 inches in length and weighing from 1-1/4 to 2-1/2 pounds.

Saugeye -- fact or fiction? Definitely a fact in Iowa.

Mike McGhee is a fisheries biologist for the department and is located in Mt. Ayr.

The saugeye will not replace the walleye but will instead complement it by inhabiting different areas -- possibly the muddy upper reaches of lakes.



CHEEC

Working Towards a Healthier Iowa

by Richard Kelley and Peter Weyer

The question is, are the levels of pollution we see in our environment harming our health? Many believe that some of the health problems we see in Iowa are related to the quality of our environment, but up to now there has not been a systematic effort to find an answer.

When the Iowa Groundwater Protection Act was signed into law in 1987 it established the Center for Health Effects of Environmental Contamination at the University of Iowa. The center, often referred to as CHEEC, was given the mission of determining the levels of environmental contamination which can be specifically associated with human health problems.

The success the center attains will depend on the capabilities and expertise offered by the multidisciplinary foundation upon which it has been established. The center is comprised of various laboratories and research units within the Colleges of Medicine and Engineering, and the University Hygienic Laboratory. In addition, the center collaborates on a number of research projects with the Iowa Department of Natural Resources, the Iowa Department of Public Health and the Iowa Department of Agriculture and Land Stewardship.

One of the first objectives of

CHEEC is to evaluate the potential associations between drinking water contamination and the health effects of cancer, birth defects and births of low-weight babies.

In the state of Iowa, as in other states, certain illnesses, such as pesticide poisoning and infectious disease, are reportable. In addition, the state of Iowa operates statewide registries for cancer, birth defects and low-weight babies. These registries allow medical researchers to identify patterns and trends that may be developing in the state. Water quality and air quality data can then be assessed to see if there is a possible link between the adverse health trends and the presence of a particular contaminant.

One of the first priorities of the staff at CHEEC has been to build a computerized environmental data base. Researchers at CHEEC are trying to identify potential associations between our statewide health registries and four environmental factors: chlorinated by-products (THMs) in municipal drinking water supplies; synthetic organic chemicals, including pesticides, in municipal drinking water supplies; pesticides, nitrates and bacteria in private drinking water supplies; and, municipal drinking water contamination from toxic waste

dumpsites. The principle sources for the environmental data base have been three large projects.

The first of these projects was a case-control study of cancer and drinking water contaminants conducted in the spring and summer of 1987. CHEEC investigators looked at water quality in 280 of the state's largest municipal water supplies. About two-thirds of the state's population is served by these supplies. In addition to the water quality data, information was collected on the type of water treatment being conducted at the time of sampling. Investigators have also collected the historical records on the treatment techniques and sources used by the water supplies.

The second of the projects was the 1986 testing of the drinking water from all public water supplies in the state. The 800 water supplies that were tested served almost 75 percent of the state's 2.9 million people. Since the sampling was completed, information on the source of water the supply was using and the treatment being applied at the time of sampling has been collected. This information will be linked to the information from the 1987 project.

The third project has been the Statewide Rural Well Water Survey. CHEEC and the DNR have been conducting a one-time survey of the quality of private water supplies used by rural Iowans. Nearly all rural Iowans

with private water supplies get their water from wells. The survey will provide a statistically valid generalization of conditions across Iowa. Seven hundred (700) rural wells have been sampled across all 99 counties. In addition, some of these wells will continue to be monitored to study changes in water quality that occur over time. Researchers have also collected information on the wells that have been sampled, possible point sources of contamination, agricultural use and practices and existing health symptoms or conditions for the people using the well.

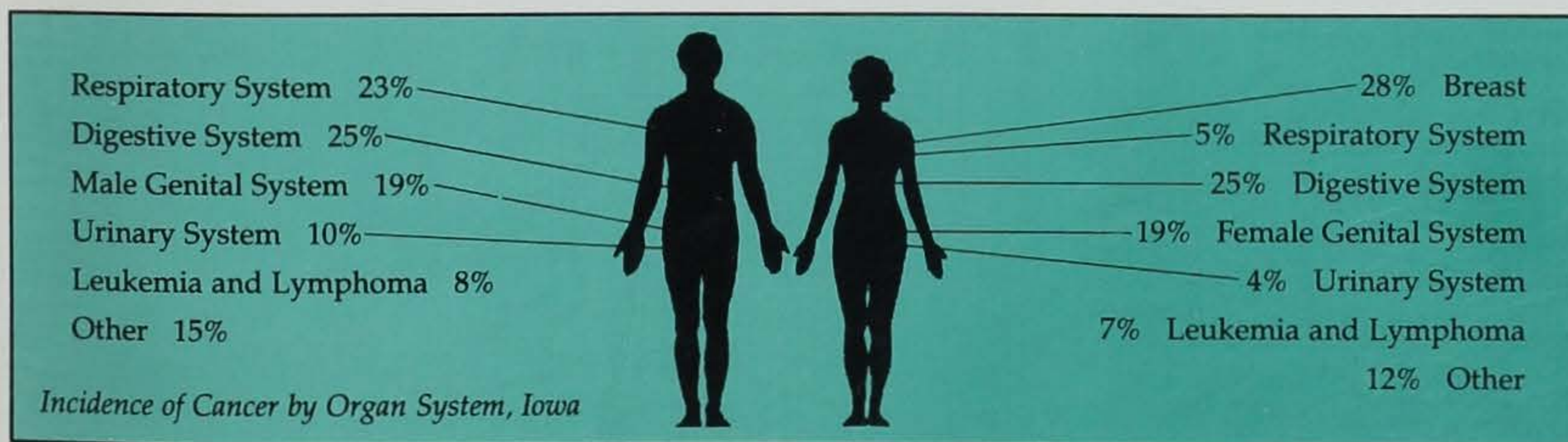
With the continually expanding environmental base in place, CHEEC has begun looking for answers. Earlier Iowa studies have clearly shown that non-Hodgkin's lymphoma, a common form of cancer, occurs at somewhat higher rates in Iowa's farming population. A study from Nebraska showed a higher rate of this cancer in communities whose drinking water supplies contained elevated levels of nitrate. Under the direction of CHEEC, examination of data from Iowa shows the same relationship. It is possible that the relationship simply reflects an increased level of agriculture activity in the area, or that the nitrate is a surrogate for another contaminant. Further studies are now in progress.

Initial studies of birth defects are focusing on larger population areas, since the number of cases

available for analysis is too small to be useful when looking at smaller communities. However, the initial observations on regional patterns may provide insights for further studies as the data base expands.

Many factors are known to be associated with the birth of low-weight babies. A low-weight baby is a child that weighs less than 4.5 pounds at birth. The rate of low-weight baby births are higher in infants born to very young or very old women, women who experience complications during pregnancy, multiple births, in Afro-American and Asian women, in small women, and to women from low incomes with poor nutrition and inadequate access to medical care. Other important factors are cigarette smoking, alcohol and drug abuse. Environmental contamination has not been well studied as a cause of low-weight babies. However, it should be noted that in the Love Canal exposure studies, the increased rate of low-weight babies during the period of active dumping was the only established human health effect.

The weight of an infant at birth is recorded on more than 99 percent of Iowa's birth certificates, and each certificate indicates whether or not the mother resides within the limits of an incorporated municipality at the time of delivery. Past surveys have suggested that only about eight percent of these women used bottled water



The state of Iowa operates statewide registries for cancer, birth defects and low-weight babies. Current research projects using the registry data include investigations into the relationship of Iowa's water quality to cancer and cancer risks to farmers, and births of low-weight babies.

during their pregnancy rather than the public system.

CHEEC researchers have begun to assess the rate of low-weight babies and possible links to drinking water contaminants in Iowa. They have calculated the rate of low-weight babies for the years 1974 to 1987 by municipality, county and true rural areas within the counties. The statistical analysis of the data suggests that as the level of agriculture increases in the truly rural population, the rate of low-weight babies decreases. However, the analysis also suggests that the rate of low-weight babies increases in rural areas for those who use shallow groundwater and surface water as their source of drinking water.

These data are only suggestive and cannot be considered to be definite indications of a problem.

However, they do merit further investigation by CHEEC. The continued study of possible environmental links to cancer, birth defects and birth of low-weight babies are only part of CHEEC's continuing research. The center has issued grants to researchers to model pollutant concentrations in groundwater, develop methods for conducting epidemiological studies of birth defects, study treatment technologies and develop a model surveillance program for agricultural health and safety.

When a contaminant is detected in groundwater or drinking water the first question asked is usually, "Is it safe?" It is one of the most difficult questions environmental and health officials have to answer. Science has nearly always provided officials with enough information to determine if

there is an immediate threat to human health. At the same time, science has almost never provided officials with enough information to say that there is no risk, or even a minimal risk, from exposure to the contaminant over a long period of time. The men and women at the Center for Health Effects of Environmental Contamination are working to change that, and in processes, making Iowa a more desirable place to live.

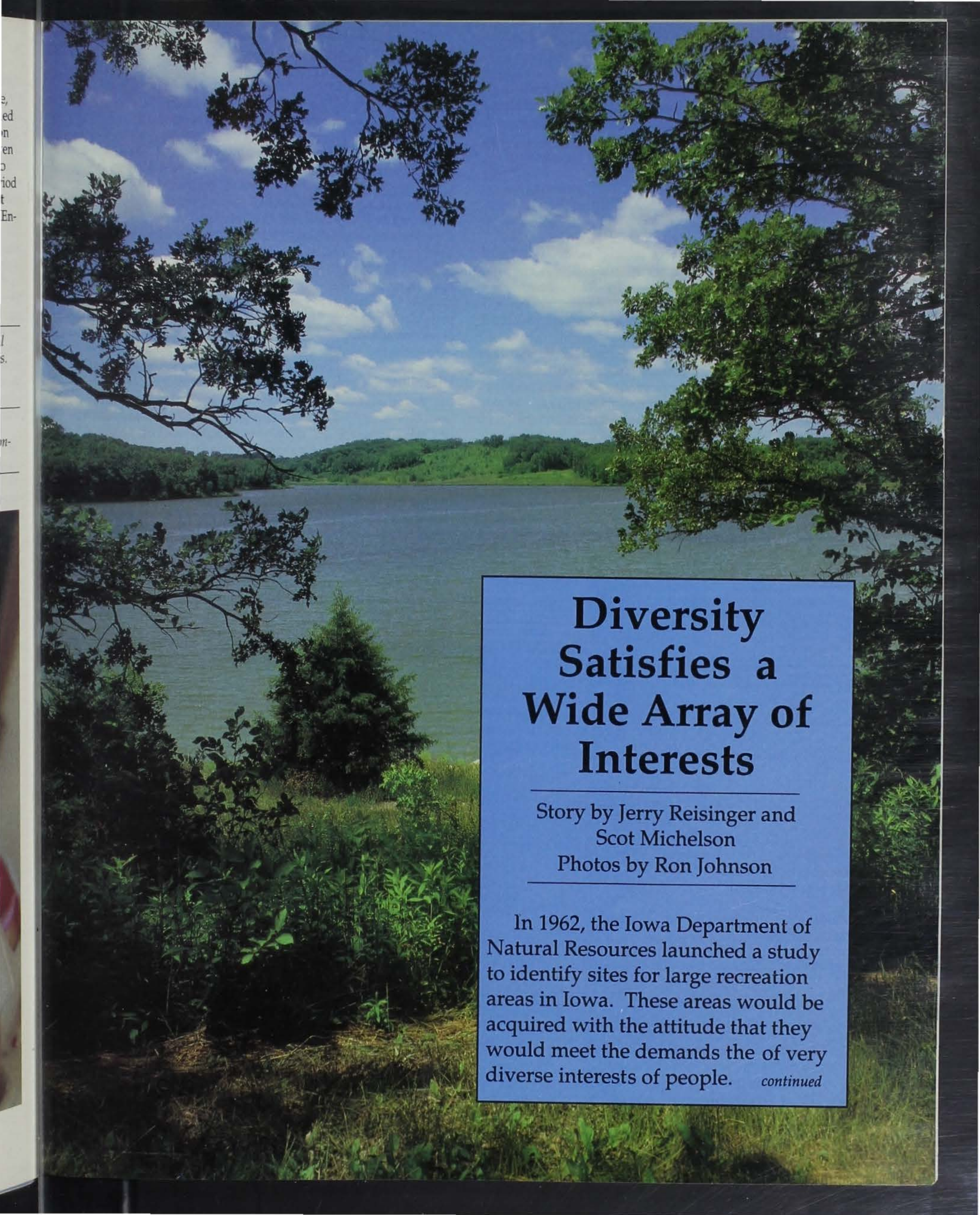
Richard Kelley is an environmental specialist in groundwater programs. He is located in the DNR's Des Moines office.

Peter Weyer is the director for the Center for Health Effects of Environmental Contamination.

One of the first objectives of CHEEC is to evaluate the potential associations between drinking water contamination and the health effects of cancer, birth defects and births of low-weight babies. In the process, they hope to make Iowa a more desirable place for future generations.



RON JOHNSON



Diversity Satisfies a Wide Array of Interests

Story by Jerry Reisinger and
Scot Michelson

Photos by Ron Johnson

In 1962, the Iowa Department of Natural Resources launched a study to identify sites for large recreation areas in Iowa. These areas would be acquired with the attitude that they would meet the demands the of very diverse interests of people. *continued*

Many of Iowa's state parks were acquired because they possessed unique and unusual features relating to history, geology, archaeology, vegetative cover, or water resources. Ledges State Park near Boone, Dolliver near Fort Dodge, and Backbone in northeast Iowa are examples of these.

The recreation areas were acquired primarily because of the potential that existed rather than the features that were already in place. The DNR was interested in sites that had the potential for relatively large bodies of water and were located in areas of the state where public use opportunities were limited. The recreation areas differ from state parks in that hunting is allowed in portions of them and 24-hour access is allowed at the same time, modern facilities are present as well as resident staff.

With the Legislature's backing, the DNR began acquiring land for several of these recreation areas in the late 1960s.

Development began at various areas around the state until the late 1970s and early 1980s when budget constraints stymied projects. The development program was given the boost it needed in 1985 when legislation made significant funding available over the next five years to accomplish badly needed facility development in state parks and recreation areas. In 1987 and 1988, nearly two million dollars of Iowa's lottery funds and federal cost-share dollars were spent for development at the Pleasant Creek Recreation Area near Cedar Rapids. The other recreation areas are in various stages of planning and development. The four major recreation areas that exist in Iowa today are: Brushy Creek, Pleasant Creek, Volga River and Wilson Island.

Brushy Creek

Brushy Creek is one of the largest outdoor recreation areas in Iowa. Its 4,200 acres of fields, woodland and stream valley offer year-round outdoor recreation opportunities in a beautiful setting.

At present, few developed outdoor recreation facilities are present at Brushy Creek. Yet the area is very popular for a variety of outdoor recreation pursuits. Brushy Creek has become a popular destination for trail enthusiasts. Equestrians enjoy riding through its many miles of bridle trails. In the winter, snowmobile enthusiasts and cross-country skiers enjoy the challenge which faces them in the area. Hikers enjoy walking the many miles of trail which traverse grasslands, woodland and stream valley

terrain.

Camping is a popular pursuit at Brushy Creek. A major campground has been developed for both equestrian and non-equestrian camping.

Hunting is one of the most popular activities at Brushy Creek. Every year, hunters pursue a variety of game species ranging from pheasants, quail, rabbits and squirrels to white-tailed deer and wild turkeys.

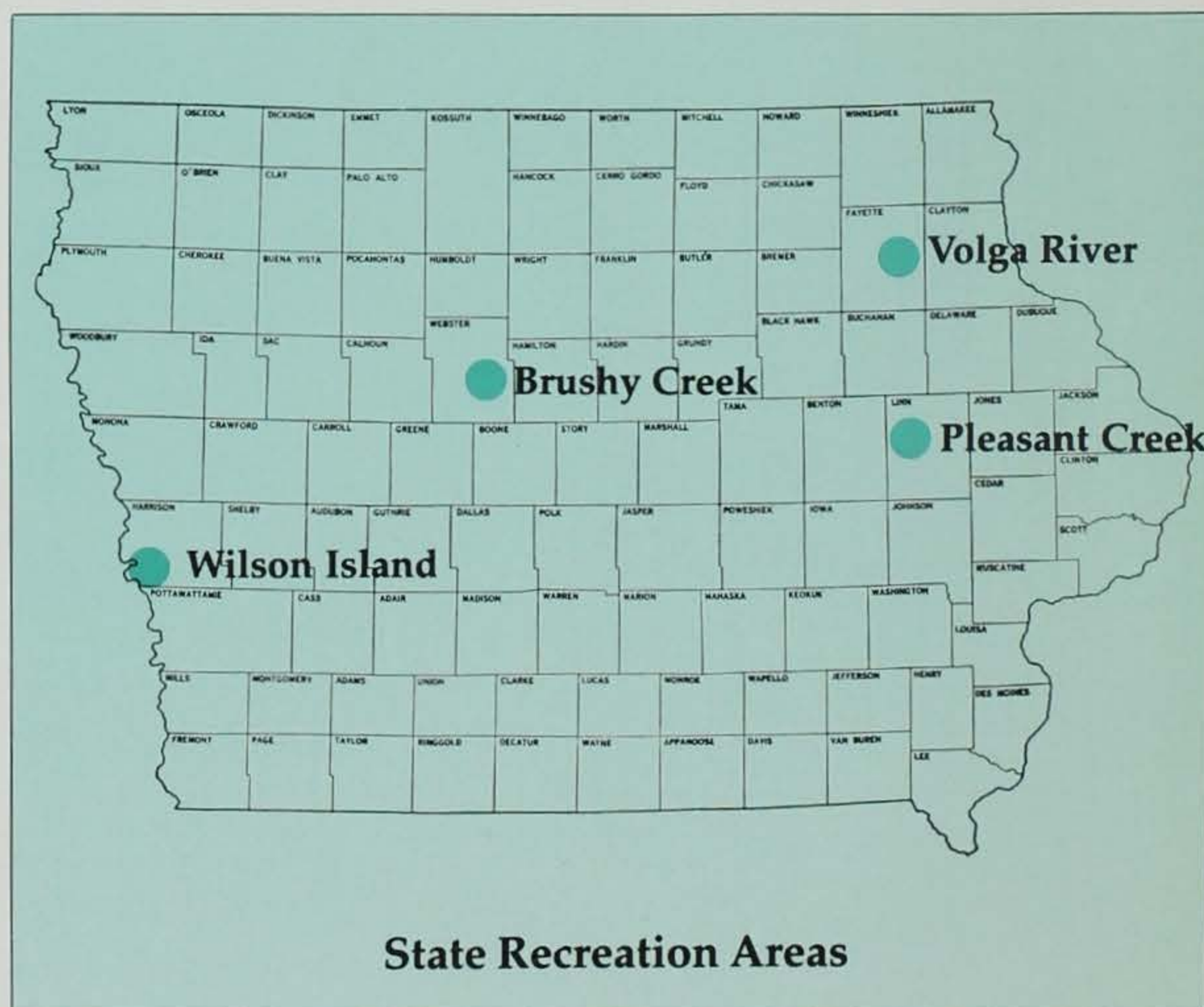
Work will continue on the construction of the dam creating a 690-acre lake in 1990. The lake will have a very high water quality and will support an excellent fishery. Future facility development will include two new campgrounds, a beach, picnic areas and family cabins. The area will feature an extensive trail system, providing opportunities for the hiker, cross-country skier, snowmobiler and equestrian.

Pleasant Creek

A 410-acre lake and more than 1,500 acres of land are conveniently available to visitors close to the cities of Cedar Rapids, Iowa City and Waterloo. The area is open year-round and provides a maximum of outdoor recreation activities. Facilities include a newly completed beach with concession building, a modern campground and extensive picnic areas with shelters.

There are 15 miles of trails for the hiker, snowmobiler, cross-country skier and equestrian, with connecting access to many area facilities and scenic overlooks. Pleasant Creek is also a popular site for organized field trials.

The lake is one of the highest quality fishing lakes



in the region and is stocked with largemouth bass, crappie, bluegill, channel catfish, tiger muskie and walleye. Shoreline fishing has been enhanced by the construction of jetties.

Pleasant Creek Lake is also one of the most popular boating spots in eastern Iowa. Four launching sites are conveniently located around the lake. These sites have a total of seven ramps for fishing, leisure boating and sailboating access.

A portion of the Pleasant Creek State Recreation Area is open to public hunting. Popular species of game include rabbits, pheasants and quail.

Volga River

The Volga River Recreation Area is located in one of the most scenic parts of the state. Northeast Iowa is often referred to as "Little Switzerland" because of its rugged topography, geologic features, and substantial timber cover which are in sharp contrast to the majority of the state's rolling hills, farmland and scattered stands of timber. The heavily wooded, rugged landscape of the Volga River is an exciting setting for a variety of outdoor recreation pursuits.

The area is an excellent habitat for fish and wildlife. The Volga River, which meanders through the 5,420-acre area, holds smallmouth bass, rock bass and channel catfish. Its banks harbor nesting wood ducks and shorebirds. Songbirds, chickadees, finches, bluebirds and woodpeckers, including the impressive pileated, are plentiful. Raptors include red-shouldered and red-tailed hawks and great-horned owls. Wild turkeys are numerous, and ruffed grouse and woodcock are occasionally seen. Red fox, raccoon, skunk, opossum, muskrat, mink and beaver use the area, and both fox and gray squirrels are found in the timbered hills. The timber and croplands in northeast Iowa provide excellent habitat for white-tailed deer, and the many deer trails in the Volga area attest to the abundance of this popular animal.

Equestrian trails wind through the area. The total trail system is more than 30 miles in length. A self-guided nature trail begins by the park office. In addition to the Volga River, the beautiful Frog Hollow Lake provides fishing and boating opportunities. The Volga Area is also open to public hunting and white-tailed deer and wild turkey are popular quarries.

Wilson Island

Wilson Island came into existence as an island sandbar around 1900. Today, Wilson Island State Recreation Area encompasses 577 acres of dense cottonwood stands. Seclusion is one of the area's greatest assets and spacious shady campsites, hiking trails and picnic spots provide a welcome retreat. A large shaded campground offers both modern and more primitive camping opportunities. The campground's electrical system was renovated in 1989. The campground roads are to be paved in 1990.

Wildlife is abundant in the park and a visitor may see deer grazing in the park's alfalfa fields or may be

awakened by a huge flock of snow geese flying low overhead in the fall. Bald eagles are often perched in the tall cottonwoods during the winter and mushroom hunters will find no better place in the spring.

A half-mile trail along the shoreline of the Missouri River and two boat ramps provide excellent access to the river. An Iowa or Nebraska fishing license is required for fishing the Missouri River and backwater at Wilson Island.

Approximately five miles of trails are used for hiking, snowmobiling and cross-country skiing. The mile long shallow backwater at Wilson Island is perfect for ice skating. A self-guided nature trail runs between the camp areas and offers hikers an excellent opportunity to learn about many of the plants found in the area.

Approximately 50 acres of Wilson Island are under cultivation to provide supplemental food for game and nongame species. The entire area, except for the campgrounds and other developed sites, is open for public hunting. Archery deer hunting and duck hunting in the backwater area are the primary sports.

Jerry Reisinger is the area manager at Pleasant Creek State Recreation Area.

Scot Michelson is the area manager at Volga River State Resreation Area.



Wilson Island and Volga River (page 13) are two of Iowa's major state recreation areas.

Toxic Cleanup Days Catching On In Iowa

by Joe Wilkinson

It was still early in the day as Bryce Harthorn sorted through the old paint cans stored in his home. Most were labeled showing what room had been painted and when. With a pretty good idea which paint would be used again and which would not, Harthorn placed the dozen or so waste paint cans alongside an old car battery and three motorcycle batteries that had been gathering dust in the garage of his home in Hudson. He loaded these potentially toxic rejects into the car. He was a courier today, taking the paint, old batteries, waste oil and other household hazardous waste to the Cattle Congress grounds in Waterloo. Used oil and other items from the neighbors were sent along, too. Today was Toxic Cleanup Day in Waterloo. Harthorn and hundreds of other people in the area were clearing out the items that were no longer of any use to them but items which could be potential poison if they were allowed to leak into the area groundwater.

Toxic Cleanup Days are catching on all across Iowa. "We're getting a big response," says Robert Ribbens, environmental specialist for the Iowa Department of Natural Resources. "At the recent one in Waterloo more than 640 households brought in hazardous materials, which is a tremendous response."

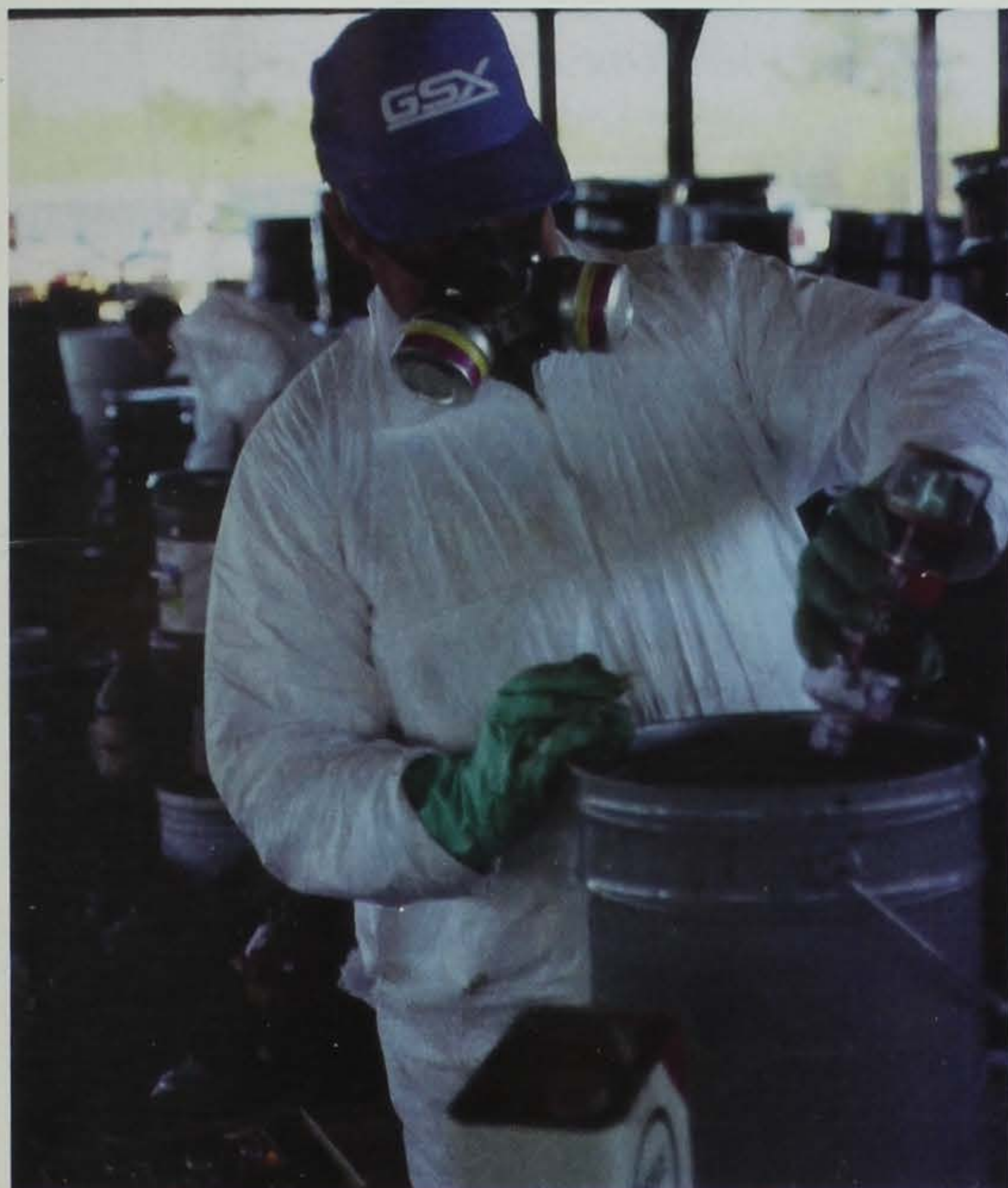
As Harthorn arrived at the



WENDY ZOHNER

Cattle Congress grounds, he made several stops. First the hazardous wastes were removed from the car — pesticides, caustic cleaners, old lawn care products. At subsequent stations, volunteers unloaded waste oil, paint and batteries. By day's end, 850 gallons of waste oil were collected. It was taken to Eagle Oil/Industrial Services in nearby Cedar Falls where it was recycled. A Marion company, Interstate Battery, hauled away the 142 batteries that

Through Toxic Cleanup Days Iowans are able to properly dispose of many types of household waste. Unused paint collected during Waterloo Toxic Cleanup Days will be used in low-income public service projects.



BOB MEDDAUGH

were left at the disposal site. Unneeded paint was turned over to Operation Threshold. Rather than expensive disposal, the 300 gallons of paint was reused by the agency in low-income public service projects.

The primary focus of this day was the hazardous waste. Placed into drums and loaded onto trucks, 100 barrels of the waste was shipped by GSX Services to its disposal site in Greenbriar, Tennessee. Much of the waste is incinerated at U.S. Environmental Protection Agency approved disposal facilities. Some of it can be treated to stabilize it. It can then be disposed of in a special hazardous waste landfill or through wastewater treatment. Depending on the type of waste, some can be fuel-blended and burned for steam production, providing energy from what otherwise would have been very dangerous waste. This Toxic Cleanup Day has been a success.

Toxic Cleanup Days in Iowa began with a one-day collection in Dubuque in 1986. With only 195 households dropping off dangerous household chemicals, the program began rather slowly. The second disposal day at Cedar Rapids reached 317 households as the awareness began to build. And

Getting the Word Out

When household products containing hazardous substances are used and disposed of improperly, they may contaminate our groundwater, the major source of our drinking water. Each household in Iowa generates approximately seven pounds of hazardous waste annually -- that amounts to approximately 4,000 tons statewide.

Retailers who sell household hazardous products are required by law to post shelf labels, signs and "Home Sweet Hazards" brochures to



assist consumers in identifying products which contain hazardous ingredients. These educational materials encourage consumers to change their buying habits -- buy only what is needed and use it up; give leftovers to others; and use safer alternatives.

The Iowa Department of Natural Resources encourages all consumers to be alert for the labels, signs and brochures identifying household hazardous materials and to make wise buying purchases accordingly. For more information on household hazardous materials, call the DNR's Groundwater Protection Hotline at 1-800-532-1114.



RON JOHNSON

The "Home Sweet Hazards" brochure, available from retailers and the DNR, details household products which contain hazardous ingredients, disposal tips for these products and alternatives to using these products.

Ribbens says that momentum has been building through the seven disposal days that have been held in Iowa. He sees it continuing this fall, as seven more are conducted.

"People are suddenly saying, 'I didn't realize this was hazardous waste.' It is encouraging that people are becoming more aware," says Ribbens. "However, 20 percent of the people will always respond, and another 20 percent will not, no matter what. The 60 percent in the middle is what we need to target. They, no doubt, have shelves holding a variety of solvents, pesticides, herbicides, old aerosol cans, acids, caustics and other poisons. That is why education is vital in Iowa."

The Toxic Cleanup Day Program is geared for that large majority of Iowans that perhaps do not connect the poison on their shelves with a polluted groundwater supply. "We are in a throw-away society, and there is this giant place called 'away' where everything goes. Suddenly, people are finding out that 'away' is only a couple miles from them and that their drinking water flows right underneath it," says Ribbens.

Toxic Cleanup Days were established through the Groundwater Protection Act passed by the Legislature in 1987. The first two cleanup days, held in Dubuque and Cedar Rapids, preceded that legislation and were funded through a grant from the Environmental Protection Agency and

Fall 1989 Toxic Cleanup Days



October 7 -- Council Bluffs,
West Pottawattamie County Fairgrounds

October 7 -- Spencer,
Clay County Transfer Station

October 14 -- Iowa City,
Johnson County Fairgrounds

October 14 -- Davenport,
Mississippi Valley Fairgrounds
(Scott County)

October 21 -- Charles City,
Floyd County Fairgrounds

October 21 -- Oelwein
(Fayette County -- location not set at press
time)

September 30 -- Des Moines,
State Fairgrounds (Polk County)

September 30 -- W. Des Moines,
Valley High School (Polk County)

At press time, most cleanup days were scheduled to be held from 9 a.m. to 4 p.m. Check with local officials or the Iowa Department of Natural Resources for further information.

through Iowa Department of Natural Resources' operating funds. This fall, the seven county cleanup days will be funded through a \$400,000 Lottery disbursement. The usual funding source, however, is money from hazardous materials retail permit fees. Retailers who sell hazardous products are charged a \$25 annual fee. However, Lottery money and EPA funding are not always available. In Waterloo this June, landfill tipping fees and other local matches paid the way for residents

to clear their shelves.

In addition to paying an annual fee, retailers are also required to post information about household hazardous materials near these products. These posters, labels and brochures help answer questions about toxic substances, disposal of them and even suggest low-cost, non-toxic alternatives for household projects.

An effective aspect of the toxic waste education program may lie in these alternatives. Consumers are urged to consider buying a



BOB MEDDAUGH



BOB MEDDAUGH



BOB MEDDAUGH

What you can -- and cannot -- bring to Toxic Cleanup Days

(Each person is limited to 220 pounds or 25 gallons.)

PERMITTED:

Motor Oils and Motor Oil Additives

All motor oil products
Transmission fluid
Engine lubricants
Oil, transmission fluid additives

Motor Oil Filters

All motor oil filters, whether canister or replaceable filter elements

Gasoline and Diesel Additives

All types of gas treatments and gas line freeze-up products

Degreasers

All engine cleaners
Most of these are also solvents, many come in aerosol cans

Waxes and Polishes (except nail polish)

Shoe polishes, floor waxes, car waxes, furniture polishes, spray dust cleaners, furniture stains

Solvents (except water)

Mineral spirits, turpentine, alcohols, cresol, naphtha

Paints (except latex-based materials)

All other paints, whether for brush or spray
Aerosol paints

Lacquers and Thinners (except water)

Caustic Household Cleaners

Drain cleaners, toilet bowl cleaners, most oven cleaners

Spot and Stain Removers with petroleum base

Petroleum-Based Fertilizers

Pesticides

Any insecticide product including, but not limited to, yard and garden sprays, roach powder, flea and tick products for pets, fly strips, moth balls and personal "bug" sprays or stick creams

Rodenticides Fungicides
Algecides Herbicides

NOT PERMITTED:

Explosives

Radioactive Waste

Gas Cylinders

Infectious Waste

Pesticides

Unknowns

Products containing 2,4,5-T, 2,4,5-TP, Silex or pentachlorophenol (dioxin-bearing wastes) are also not permitted.

smaller amount of a toxic product rather than getting the large economy size which might eventually end up discarded. Another alternative could be to do without the chemicals and utilize a safe, natural alternative for household chores.

The Toxic Cleanup Day process is an expensive one by the time chemicals are sorted and shipped to other parts of the country. Collection, disposal and education are costly items as Iowa scales its toxic waste disposal mountain. Costs range from \$113 per household served in Cedar Rapids in 1988 to \$248 in Denison this past spring. Those figures do not include volunteer labor and locally generated publicity and advertising. The Waste Management Authority Division of the Iowa DNR is looking into the establishment of permanent collection sites with regular pickup schedules for household hazardous wastes.

Ribbens anticipates that public awareness and waste disposal will grow as the Toxic Cleanup Days continue. "In Iowa, environmental issues seem to be getting a lot of press because of recycling and the landfill issues," he says. "And that brings about the hazardous waste issue. There are a lot of communities very excited to be a part of the environmental movement. They are willing to put a lot of time into the promotion of Toxic Cleanup Days."

Ribbens also says that even with only a fraction of the communities responding thus far, several tons of toxic material are out of circulation. "However, it is amazing how much waste is still out there. And it is a threat as long as it remains out there."

Joe Wilkinson is an information specialist for the department and is located in Iowa City.

A Learning Tool, A Thing of Beauty

by Gary Hightshoe

Long before Iowa was a state, the bright colors and bold patterns of a prairie-dominated landscape welcomed the pioneers and inspired the new residents. Today, a few small remnants, or less than one-tenth of a percent of the original Iowa Prairie, are all that remains. It is a vanishing element of our state's natural heritage.

People will not safeguard that which they do not know, let alone what they do not understand. They will not protect and treat kindly what they do not appreciate.

An experiment to rediscover the wealth of our inherent resources and an opportunity to

appreciate the beauty of our prairie heritage is underway at Iowa State University. More than 100 different kinds of native prairie species were planted in late April as part of the 10th anniversary celebration of the College of Design.

The idea to plant a prairie border, similar to an English perennial border, was developed by students and faculty in landscape architecture at ISU. The prairie border is believed to be the first such treatment anywhere, because it features solely prairie forb (wildflower) species and does not include the grasses.

Bands of color that change as



Students designed and planted the 20- by 200-foot long strip of prairie located at the entry to the College of Design building. The goal of the experiment is to advocate the use of native prairie landscape in park and residential settings.

RON JOHNSON

RON JOHNSON



the seasons change is the concept of the new prairie border. This concept and composition mirrors the knowledge, skills and creativity characteristic of design education at Iowa State University.

About 150 students participated in the design and the planting of a 20- by 200-foot long strip located along the entry walk to the College of Design building. More than 100 different species of prairie forbs and approximately 10,000 plants are represented. Some of the species to be found in the border are: shooting star, pasqueflower, bluetts, six varieties of blazing star, compassplant, orange hawkweed,

three types of penstemon, nine different asters, three types of violet, culvers physic, two varieties of spiderwort, lupine, three types of wild indigo, five varieties of goldenrod, five different coneflowers and many more. The flower display is expected to continue until November.

Since rooted plants were used rather than seed, the beauty and individuality of their forms, colors and textures this first growing season has been immediate and inspirational. This project enables students, alumni and friends of the College of Design and Iowa State University to see and appreciate a

truly unique display. Many persons have already taken the opportunity to observe close at hand an element of our state's natural heritage that has all but disappeared. That these persons may become advocates of prairie preservation and the recreation of the very "soul" of our native prairie landscape in park and residential settings is the primary goal of this experiment.

Gary Hightshoe is a professor of landscape architecture at Iowa State University's College of Design.



ROBERT DYAS



WILLIAM BOON



WILLIAM BOON



ROBERT DYAS

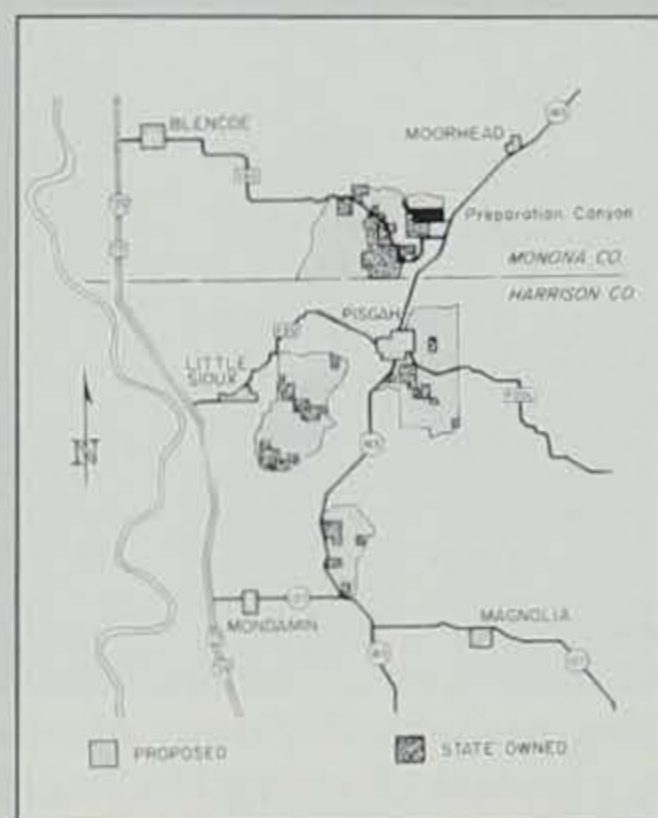
Using rooted wildflower plants has allowed visitors the pleasure of seeing the beautiful prairie flowers in their first growing season. Just a few of the varieties include culvers physic (left), bottle gentian (top) and sneezeweed (upper left).

CONSERVATION UPDATE

Loess Hills Pioneer State Forest Update

by Jim Bulman, chief, state forests management bureau

Iowa is fortunate to have an unusual geological area like the loess hills which lie along the western edge of our state. This loess soil is comprised mainly of powdered quartz and feldspar. The hills were deposited from dust blown from the Missouri River floodplain during glacial times, and the whole area could hardly be imagined as the perfect location for a forest.



Tree growth in these hills is a phenomenon of recent origin brought about by an increasingly rapid spread of woody vegetation due to increased seed production and dispersal and changes in agricultural practices in the area.

This increase in forested acreage brought about an interest in preserving an example of this "new" forest along with the unique geological formation where it is located.

Planning and land acquisition for the Loess Hills Pioneer State Forest began in earnest in 1985-86 with public meetings and purchase of the first lands that will eventually comprise a 17,000-acre state forest in Harrison and Monona counties in western Iowa.

To date, 3,896 acres have been purchased from 22 landowners in the three years the project has been in existence. Most activity has been in the Pisgah and Mondamin units where 31 percent and 33 percent, respectively, of the projected purchases have been made. The Iowa Department of Natural Resources is presently negotiating with owners of an additional 700 acres of land, and by year's end total land acquired should be more than 5,000 acres.

Up to this point, the forest has had only a small budget, and no personnel of its own. Soon an area manager and a forestry leader will be assigned, making it

possible to provide increased accessibility and new facilities.

For more information, write for a copy of the brochure, *The Loess Hills Pioneer Forest*, from the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, or call (515)281-5145.

Energy Efficiency Works -- Iowa's Energy Leaders Prove It

What do a small company in northwest Iowa, a manufacturer of refrigerators and the National Guard have in common?

The three are among the five 1989 winners of Iowa Energy Leadership Awards. The five winners, chosen from more than 50 nominees for the awards sponsored by the Iowa Department of Natural Resources, include:

Amana Refrigeration, Middle Amana -- leading the appliance industry with the nation's most energy-efficient refrigerators and freezers.

Bio-Mass Energy, Inc., and the Sioux Center Bio-Mass Energy Project -- showing how an entire community -- public and private sector -- can get involved in energy efficiency.

The Iowa Department

of Public Defense (National Guard) -- waging war on wasted energy in its facilities.

Iowa Electric Light and Power, Cedar Rapids -- saving customers money by encouraging energy conservation and replacing polluting energy sources with clean, renewable resources.

Lundell Manufacturing of Cherokee -- developing and making equipment to turn garbage into energy.

According to Larry Wilson, director of the DNR, the five winners exemplify innovation and leadership in energy efficiency and alternative energy resources.

"Energy innovation is a big part of why each of these winners have been successful at their endeavors," said Wilson. "The entire state benefits from their successes -- from the creation of jobs, a cleaner environment, lower utility rates, and improved services. These companies and organizations are proving that using energy efficiently works for them and for Iowa."

The award winners were featured at the Iowa Department of Natural Resources' Iowa State Fair exhibit. The awards will be presented during a special program in October during Energy Awareness Month activities.

Big Game Hunting In Iowa Okayed For Nonresidents

Hunters from states outside of Iowa will be allowed to hunt deer and turkey in Iowa for the first time, beginning with the 1989 season, as a result of recent action by the Natural Resource Commission of the Iowa Department of Natural Resources.

The cost of the license for nonresidents is reciprocal with what that state charges Iowans to hunt deer or turkey, or a minimum of \$100 for deer and \$50 for turkey. For example, it will cost a Wisconsin deer hunter \$106.60 and an Illinois turkey hunter \$75. All hunters must also have an Iowa habitat stamp which costs \$5. Iowa residents pay \$20 for a turkey or deer permit in their state.

There will be 1,000 deer and 500 turkey permits available to nonresidents for shotgun, muzzleloader and bow and arrow hunting.

The shotgun or muzzleloader deer seasons are either Dec. 2-6 or Dec. 9-17. The deer muzzleloader-only season is Dec. 18-Jan. 10. The deer bow season is Oct. 1-Dec. 1 and Dec. 18-Jan. 10. Hunters will be allowed only one permit each and it will be for a deer of either sex.

Fall turkey hunters, also limited to one bird of either sex, can hunt from Oct. 9 through Nov. 26.

To apply for the limited number of



For the first time, beginning with the 1989 season, nonresidents will be allowed to hunt deer and turkey in Iowa. There will be 1,000 deer and 500 turkey permits available to nonresidents for shotgun, muzzleloader and bow and arrow hunting.

permits, hunters must write the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034 or phone (515)281-5145 to ask for an application. Applications for deer permits will be accepted from Aug. 15 and until 1,000 permits are

issued or Nov. 1, whichever comes first. For turkey, it is Aug. 15 and until 500 permits are issued or Sept. 30, whichever comes first.

Applicants must be at least 12 years of age and have proof of successful completion of a hunter education course.

State Habitat Stamps Are Now \$5

The price of the Iowa Habitat Stamp, required of all hunters and trappers between 16 and 65 years old, has increased from \$3 to \$5, effective July 1, according to the Iowa Department of Natural Resources.

New stamps are now available. According to Ross Harrison, information chief of the DNR, they differ from the old

stamps only by having \$5 appear where the \$3 had been.

"Both stamps, the \$3 and the \$5 versions, are valid for the 1989 hunting season," said Harrison. "Almost 260,000 habitat stamps were sold last year, generating about \$780,000 for buying land and habitat development. In 1990, the first full year of the \$5 habitat stamp, more than \$1 million should be raised," he said.



25 Home Energy Conservation Tips

1. Weatherstrip windows and doors in winter.
2. Insulate or remove window air conditioners when not in use.
3. Close the fire place damper tightly.
4. Insulate the basement either inside or outside.
5. Insulate the water heater and its pipes.
6. Vacuum refrigerator vents and coils.
7. Shorten the time and frequency the refrigerator is open.
8. Use microwave instead of range to warm up food.
9. Turn off range pilot light and light by hand.
10. Keep drapes closed at night and on cloudy days in winter.
11. Lower thermostat to 68 degrees in winter; 60 degrees at night.
12. Do not block registers with furniture.
13. Close registers and doors to unused rooms.
14. Change the furnace filter often.
15. For summer food preparation: barbecue.
16. Turn off unnecessary lights and appliances.
17. Use fans instead of an air conditioner.
18. Lower the temperature on the water heater.
19. Wash only full loads of dishes or clothes.
20. Dry clothes outside when ever possible.
21. Insulate around waterbed mattress.
22. Keep waterbed covered during the day to retain heat.
23. Avoid the less efficient "long-life" light bulbs.
24. Use low wattage lightbulbs whenever possible.
25. Install fluorescent bulbs.

Portion of Stone State Park to be Dedicated as Preserve

As a part of Prairie Heritage Week, Sept. 10-16, 1989, a portion of Stone State Park near Sioux City will be dedicated by Governor Terry Branstad on Sept. 14 as Iowa's 83rd state preserve.

The 90-acre area contains a mixture of native prairie and oak woodland and will be known as the Mount Talbot State Preserve. The dedication will take place at noon on Sept. 14 with speeches by Governor Branstad; Larry Wilson, director of the Iowa Department of Natural Resources; and Paul Christiansen, chairperson of the State Preserves Advisory Board. Tours will be conducted both before and after the ceremony. The new preserve is located in the extreme northern part of Stone State Park and is accessible from Sioux City by the Talbot and Rock River roads.

Des Moines River Greenbelt Book Available

The history of the Des Moines River in the nine-county Greenbelt area is the focus of the *Saga of the Des Moines River Greenbelt*. The nine Greenbelt counties are: Boone, Dallas, Jasper, Hamilton, Mahaska,

Marion, Polk, Warren and Webster.

The book was written by Dr. Harriet Heusinkveld, a retired professor of geography from Central College, Pella. Price of the book is \$4 and can be purchased from some county and city offices within the Greenbelt area or from the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

DNR Publications

New and recently revised publications of the Iowa Department of Natural Resources are listed below. These publications are free unless otherwise noted (\$). To request copies, write Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, or call (515)281-5145. (We reserve the right to limit quantities on some publications.)

1989 Hunting and Trapping Regulations (Revised)

Composting Your Yard Waste in a Holding Bin (Revised)

Iowa Boat Launching Directory (New; 70 pages; listing, by county, of more than 950 boat launching facilities in Iowa.)

Recycle: Be Part of the Solution, Not Part of the Problem -- A How-To Recycling Guide (Revised)

Boone Research Station Named Urban Wildlife Sanctuary

The National Institute for Urban Wildlife has certified the Department of Natural Resources' Boone Wildlife Research Station as an urban wildlife sanctuary. This program, initiated in 1987, has recognized 45 other properties around the state.

The objectives of the institute's Urban Wildlife Sanctuary Program are to: enhance urban wildlife habitat, promote an appreciation and understanding of urban wildlife and its habitat needs, and give recognition to private and public landowners who dedicate their properties to wildlife uses. Although the research station, located south of Ledges State Park, is anything but urban, Laura Jackson, nongame urban biologist, feels the area is a suitable example of what steps can be taken to enhance wildlife habitat.

"Too often urban properties exhibit a 'lollypop syndrome' of large shade trees and manicured lawns," Jackson said. "With the addition of shrubs and flowers, outdoor areas can attract a greater diversity of wildlife from songbirds to butterflies."

Gomer E. Jones, president of the National Institute for Urban Wildlife, said, "We thank the Boone Wildlife Research Station for its

concern for wildlife and its habitat needs."

Individuals interested in the program should contact the National Institute for Urban Wildlife, 10921 Trotting Ridge Way, Columbia, Maryland 21044 or the Iowa Nongame Program for an application form. All applicants then submit a site plan/description (including photographs) depicting natural and owner-enhanced habitats meeting the four basic wildlife needs — food, water, cover and living space.

Examples of the type of information required will be included with the application form. If people apply through the Nongame Program, a portion of the application fee will be returned to the program because Iowa is an affiliate member of the National Institute for Urban Wildlife.

Any questions concerning this program can be directed to the Nongame Program, Boone Wildlife Research Station, Rte. 1, Ledges Road, Boone, Iowa 50036, (515) 432-2823.

Each day, Americans throw out 200,000 tons of edible food, toss away 150,000 tons of boxes, bags and wrappers, and junk enough automobiles to form a line of traffic more than 50 miles long.

— National Wildlife magazine

Classroom Corner

by Robert P. Rye

Frequently you can tell what family a wildlife species belongs to by the way they behave, feed or look. Of course, there are members that are exceptions. Test your knowledge of bird families and see how well you can identify some of Iowa's birds.

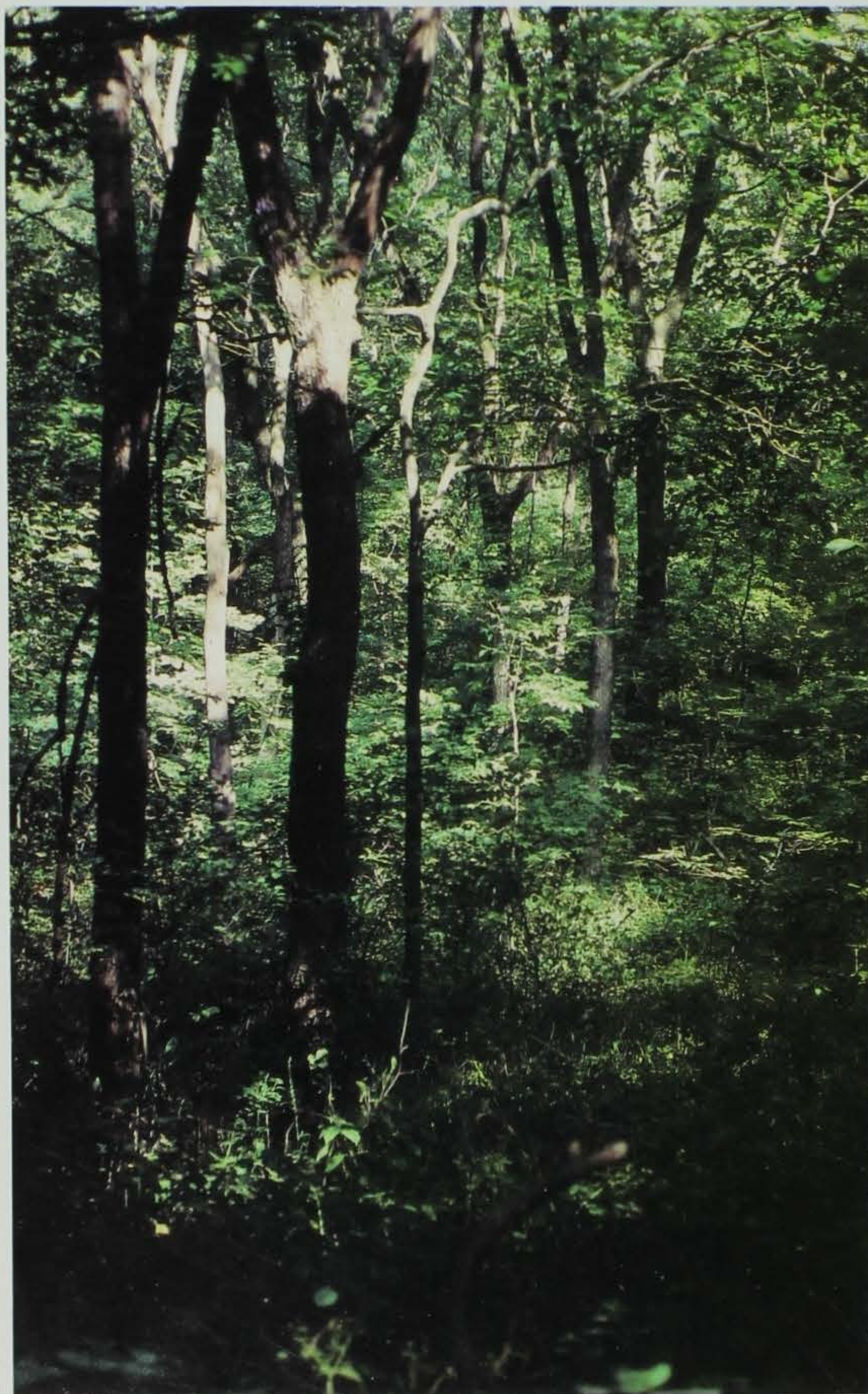
1. Name the member of the woodpecker family that spends much of its time on the ground.
2. Name the common hummingbird found in Iowa.
3. Name the member of the woodpecker family that drills parallel holes then feeds on the sap.
4. Name the member of the goatsucker family that nests on flat roofs of city buildings.
5. Name the member of the blackbird family that refuses to incubate its eggs and rear its own young.
6. Name the member of the swallow family that commonly nests in bird houses.
7. Name the member of the thrush family that has the spotted breast only when young.
8. Name the member of the finch family that is the Iowa state bird.
9. Name the member of the flycatcher family that has a broad white band across the end of its tail.
10. Name the member of the swallow family that is truly swallow-tailed.

ANSWERS:

1. Common Flicker 2. Ruby-throated Hummingbird 3. Yellow-bellied Sapsucker 4. Nighthawk 5. Brown-headed Cowbird 6. Purple Martin 7. Robin or Bluebird 8. American Goldfinch 9. Eastern Kingbird 10. Barn Swallow

COUNTY CONSERVATION BOARD FEATURE

Islands of Timber by Chuck Corell



Iowa is a prairie state. Our deep, black, rich prairie topsoil is proof that tallgrass prairie once covered almost 90 percent of Iowa. But the forest also had its niche. There were nearly seven million acres of hardwood forests in Iowa before it was settled. The largest tracts were found in the eastern and southern parts of the state. Covering the rest of the state, the forests thrived along stream corridors and in scattered islands surrounded by the sea that was the tallgrass prairie.

One of these hardwood islands still exists in Audubon County in west-central Iowa as part of the Littlefield Recreation Area. Littlefield Timber is a 40-acre tract of native hardwood forest that may seem insignificant when compared to much larger areas in other parts of the state. But Audubon County is prairie country, and the county probably never had more than 1,000 acres of forested lands before settlement. So this 40-acre forest is an important island in the county.

Littlefield Recreation Area is managed by the Audubon County Conservation Board as a 444-acre, multi-use facility. Nestled into the area, Littlefield Timber serves as a wildlife refuge and nature study area.

The forest is a magical place. A self-guided nature trail meanders through dense stands of oak, hickory and walnut trees. The tall trees tower above the thick underbrush, allowing only a patchwork

Littlefield Timber, a 40-acre tract of native hardwood in the Littlefield Recreation Area, is "an island of timber amongst a sea of prairie."

AUDUBON COUNTY CONSERVATION BOARD



of sunlight to sparkle through the canopy.

An orchestra of birds call to each other as they flit through the branches overhead. Searching for food, rabbits and chipmunks weave their way through the brush which conceals the forest floor. A white-tailed doe watches closely as her twin fawns explore their world of shadows and damp coolness.

People of all ages visit the area to learn about the forest and how parts of Iowa looked before European settlement. School children come to gaze — wide-eyed — at its natural marvels. Adults, too, enjoy the chance to shut out the stresses of modern life and to hide in the peace of the timber. Bird watchers, wildflower enthusiasts, mushroom hunters, and just plain nature lovers take the time to experience the wonders of Littlefield Timber.

Yes, Iowa is a prairie state. But, in Audubon County, there's a special little island of timber that serves as a refuge for many living things -- including people.

Chuck Corell is director of the Audubon County Conservation Board.

CALENDAR

SEPTEMBER 9 AND 10

Festival of the Forests. This second annual event will take place at Pioneer Park in Page County. Activities include crafts and displays and demonstrations on forestry and wood-related subjects. For more information, contact the Page County Conservation Board, Courthouse, Clarinda, Iowa 51632, (712)542-3864 or (712)542-5498.

SEPTEMBER 9 AND 10

Chichaqua Wild Game Expo. Exhibits of sporting goods and hunting and fishing areas, outdoor shooting sport events, rendezvous encampment, demonstrations and displays. For more information, contact Polk County Conservation Board, Jester Park, Granger, Iowa 50109, (515)967-2596.

SEPTEMBER 10

Hopeville Rural Music Reunion. Hopeville Square County Park is the location for a music festival. For more information, contact John Klein, Clarke County Conservation Board, Clarke County Courthouse, Osceola, Iowa 50213, (515)342-3960.

SEPTEMBER 23 AND 24

Hawk Watch. Effigy Mounds National Monument, north of Marquette in Allamakee County, is the location for the fifth annual hawk watch. For more information, contact Laura Jackson, nongame wildlife biologist, Iowa Department of Natural Resources, Boone Research Station, Rte. 1, Ledges Road, Boone, Iowa 50036, (515)432-2823.

SEPTEMBER 23 AND 24

Fort Atkinson Rendezvous. Buckskinners, period costumes, food and crafts, military drills and theatrical productions within the historic fort walls.

For more information, contact Volga River State Recreation Area, Rte. 1, Box 72, Fayette, Iowa 52141, (319)425-4161.

SEPTEMBER 29

Roadside Vegetation Management Conference. The third annual conference will be held in Cedar Falls and will feature discussions on burning as a safe roadside management tool and the use of roadsides for expanding wildlife habitat. For more information, contact Alan M. Ehley, McCollum Science Hall, Biology Department, University of Northern Iowa, Cedar Falls, Iowa 50614, (319)273-2813.

OCTOBER 14 AND 15

Heritage Days. Osborne Pioneer Village in Clayton County is the location for pioneer crafts and skills. For more information, contact Clayton County Conservation Board, Osborne Conservation Education Center, Elkader, Iowa 52043, (319)245-1516.

OCTOBER 14 AND 15

Forest Crafts Festival. A festival of wood crafts and demonstrations, chain saw carvers, buckskinners and an operating sawmill at Lacey-Keosauqua State Park in Van Buren County. For more information, contact Lacey-Keosauqua State Park, Box 398, Keosauqua, Iowa 52565, (319)293-3502.

OCTOBER 14 AND 21

Iowa Natural Resources Education Workshop. The workshop will be held on October 14 in Madrid, Iowa, and on October 21 in Cedar Falls. The workshop includes sessions on groundwater, recycling, safety and education in shooting sports, Ding Darling project and wildlife habitat judging. For more information, contact Lorrie Frett, Natural Resource Workshop, 33 Curtiss Hall, ISU, Ames, Iowa 50011.

BLIND RESERVATIONS

One Alternative to Hunting Pressure

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Story by Robert Moore
Photos by Ron Johnson

The spectacular spring snow goose migration is almost legendary and has been described in various terms, often poetic, by many who have journeyed to southwest Iowa. Often words fail to adequately describe the magnitude of the sight. One first-time observer wrote, "... an unearthly din filled the air announcing their (geese) approach as one could see long lines — like strings of beads — silhouetted in the afternoon sky; then, as if by

some prearranged signal, birds began to slideslip or tumble like falling leaves descending with out-stretched coral-pink legs reaching for solid ground." These birds arriving on a mild March breeze are on one stage of the 3,000-mile flight to their arctic nesting grounds.

Migrating waterfowl have traditionally inspired the imagination and the lure of far-away places. Many of these birds are headed for the western shore of Hudson Bay and Baffin Island off the eastern shore. Nesting colonies are identified with names like La Perouse Bay, McConnel River, Boas River and East Bay to name a few.

Timing is very critical to these birds because of the



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short time available for raising their brood of goslings. Young geese grow at a fantastic rate, feeding intermittently throughout days with 20 hours of daylight. They are raised in the land of the midnight sun, the arctic fox, the caribou and the polar bear.

The snow goose is one species that has prospered in recent years, mostly because its breeding grounds have not been altered by people. We will continue to see

almost unbelievable numbers of these birds as long as adequate nesting, migration and wintering habitat is available. Unfortunately, reduction in aquatic habitat due to agricultural drainage has seriously reduced the available acreage to migrating waterfowl. This has a tendency to concentrate waterfowl into areas where problems can occur.

By late September, snow geese have left the Hudson Bay area and moved south. Significant concentrations of geese occur at Oak Hammock Waterfowl Refuge just north of Winnipeg, Manitoba. Further south, the Devil's Lake area in North Dakota, Sand Lake in South Dakota, DeSoto National Wildlife



Forney Lake and Riverton Wildlife Area are controlled waterfowl hunting areas that are operated on a blind reservation system. Blind site selections are made by drawing numbered bingo balls until each registered party has made a blind selection.

Refuge along with Forney Lake and Riverton Wildlife Area in Iowa, and Squaw Creek National Wildlife Refuge in Missouri provide vital resting places for fall migrants.

Not only do goose numbers build up at Iowa's two public hunting areas situated between two large federal waterfowl refuge systems, but likewise does the number of hunters. Increased hunting pressure often results in poor hunting quality on waterfowling areas. Hunters were described as "elbow to elbow" with one another on the popular Forney Lake in the early 1960s. Competitive-type hunting developed which encouraged poor sportsmanship, short tempers, a disregard for safety, and few birds in the bag.

The increase in the number of hunters on the same amount of public land and deteriorating hunting conditions necessitated a change in area management. Controlled waterfowl hunting was initiated on Forney Lake in 1966 and on a portion of the Riverton Area in 1972. A "controlled" system is defined as a fee hunting area with a restricted number of hunters assigned specific hunting sites. A \$10 blind fee admits one hunter, and \$5 for each additional hunter in a party is charged to help defray the cost of providing blinds and hiring temporary personnel to staff the check stations.

The two controlled waterfowl areas are designed to

operate on a blind reservation system, although persons without reservations are accommodated each day on a first-come, first-served basis providing blinds are available. All that is necessary to apply for a blind reservation is a letter addressed to the appropriate hunting area and a \$10 blind fee for each day requested. A blind reservation confirmation will be sent by return mail.

While waiting for the appointed day in the reserved blind, the following suggestions are offered to make the day afield more enjoyable: take time to target practice on clay birds, review your field guide for quick duck and goose identification, check over your hunting equipment, and warm up the duck/goose call with a few practice sessions. Then there is the need to estimate distance. The snow goose is a fairly large bird, and judging distance-size relationship of a flying bird is an important factor in consistently putting birds in the bag. Shooting at the birds out of effective killing range (skybusting) is not only a waste of shells, but also increases the chances of crippling birds.

The special hunting date has finally arrived. All hunters are required to report in at the check station to exchange their hunting licenses for a daily blind permit. Blind site selections are made one hour before legal shooting time by drawing numbered bingo balls. The



party that draws ball number one has first choice of blinds, ball number two has second choice, and the procedure continues until each registered party has made a blind selection.

Once the drawing is over, the hunters make their way to their chosen blind under cover of darkness. The camouflaged blinds are 4'x8', constructed of plywood, and are limited to a party size of three hunters. Some blinds are located on dry land in crop fields while others are situated on dikes or mounds surrounded by water. Blind location information is posted in the check station and the station workers are there to assist the hunter. Also, two blinds are available at each hunting area to accommodate the handicapped.

The blinds are situated on the perimeter of a "retrieve zone" that is approximately 100 yards from the refuge segment. There is an opportunity for pass shooting and decoying birds as they leave and return to the area. Bird activity largely depends upon weather conditions and to some extent on the numbers utilizing the area. Among the snow geese will be small groups of white-fronted geese, an occasional Canada goose, and small groups of ducks darting with rapid wing beats looking like dwarfs compared with the geese.

The two controlled waterfowl areas are quite different in layout as are the degree of habitat management needed to attract and hold waterfowl. Forney Lake is an old Missouri River oxbow near Thurman



Once the hunt is completed, all hunters are required to return to the check station where biological and use data is collected. In recent years, the snow goose harvest at Forney Lake and Riverton Wildlife Area combined has ranged between 1,500 and 2,500 birds.

that received a very heavy silt load from the infamous 1952 flood. Today, it is a shallow marsh that requires supplemental water from two wells. The snow goose is the main attraction on this 950-acre wildlife area.

The controlled hunting portion of the Riverton Area was developed in the early 1970s. This area is divided into independent management segments by utilizing a system of ditches and dikes. Moist soil vegetation and row crops are a part of the habitat manipulation scheme. The water is pumped from the West Nishnabotna River into the individual compartments. The hunter has about an equal opportunity to bag ducks along with snow geese on this 1,100-acre area. Note: the "old, Mallard Hole" Riverton Area is located south of the controlled hunting segment and is open to public hunting.

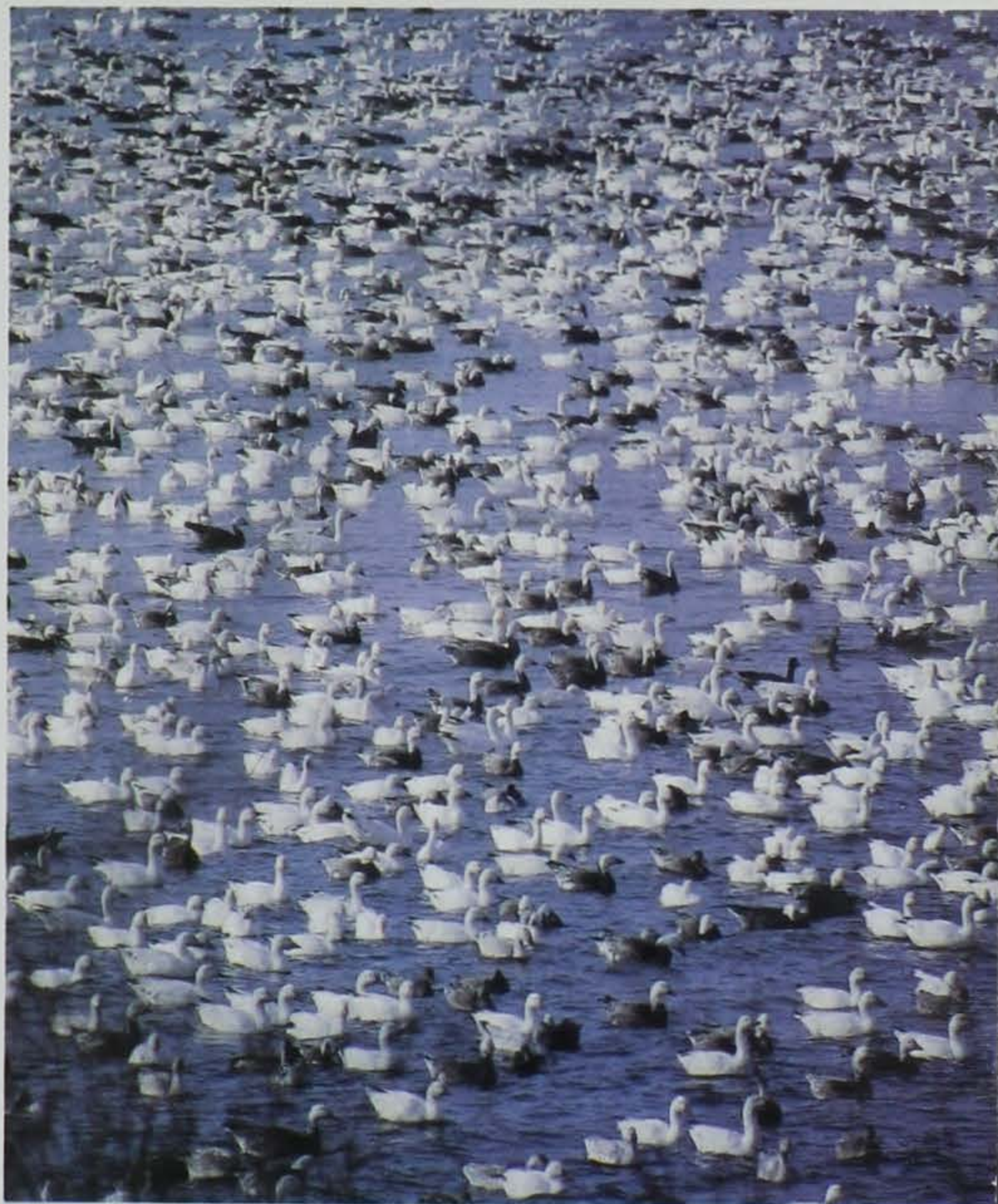
Upon the completion of the hunt, all hunters must return to the check station where biological and use data is collected and the daily permit is returned for the hunter's license. In recent years, the snow goose harvest at Forney Lake and Riverton Area combined has ranged between 1,500 and 2,500 birds. However, these two areas contribute significantly to the snow goose harvest on private land. The four southwestern counties account for approximately 42 percent of Iowa's total snow goose harvest.

Data collected over the years at the check stations has indicated that gradual changes have occurred in the goose migration pattern. For example, very few snow geese arrive in southwest Iowa prior to mid or late October — nearly a month later than in the 1970s. Mid-December weather, primarily lack of snow cover, has resulted in large concentrations of geese — over 100,000 birds. In fact, seven of the last nine years, peak snow goose numbers at Riverton have occurred in early December. Thus, the special Southwest Goose Zone was implemented to take advantage of this changing migration pattern.

Iowa's snow goose harvest in the 1960s was quite modest, averaging 15,000 birds. As snow goose populations increased, Iowa's harvest increased to an average of 42,000. During the 1980s, the Iowa snow goose harvest declined to an average of 24,000, even though snow goose population continues to increase. This has been due in part to the late fall migration pattern and a general shift to the west resulting in more birds using the Central Flyway.

The fall of the year will soon be upon us with its many colors, deep blue sky, and warm afternoons. Add to the picture wave after wave of snow geese returning south from the far north country. The goose migration in western Iowa along the Missouri River valley is underway. Observers will once again attempt to put into words a sight that is difficult to describe. Simply stated, the multitude of geese that fill the sky each fall hastens the heartbeat of the hunter and bird watcher alike.

Robert Moore is the department's district wildlife supervisor for southwest Iowa. He is located in Lewis.



Controlled Waterfowl Hunting Information

Letters requesting blind reservations are accepted beginning the second Monday in September. Dates are not booked for December due to uncertain weather conditions. General hunting information is available during the waterfowl season by calling the check station between 8 a.m. and 5 p.m. (no phone reservations). Write to the Iowa DNR at one of the addresses below:

Riverton Wildlife Area
Riverton, Iowa 51650
Phone: (712)374-2510

Forney Lake
Thurman, Iowa 51654
Phone: (712)628-3155

Robert Moore
Cold Springs State Park
Lewis, Iowa 51544
Phone: (712)769-2587

